

## CLAIMS

1. A method for testing a plurality of channels associated with a forward  
2 link in a wireless data communication system, comprising:  
    receiving a first message having included therein test settings for one or more  
4 channels comprising traffic channels, auxiliary channels, or a combination thereof;  
    configuring the one or more channels based on the test settings in the first  
6 message;  
    receiving test packets via a forward traffic channel;  
8 transmitting loop back packets via a reverse traffic channel; and  
    transmitting signaling data via traffic or one or more auxiliary channels.
2. The method of claim 1, wherein each loop back packet includes data  
2 descriptive of one or more test packets.
3. The method of claim 1, wherein the wireless data communication system  
2 is a CDMA system.
4. The method of claim 3, wherein the CDMA system supports cdma2000  
2 HAI standard.
5. A memory communicatively coupled to a digital signal processing  
2 device (DSPD) capable of interpreting digital information to:  
    receive a first message having included therein test settings for one or more  
4 channels comprising traffic channels, auxiliary channels, or a combination thereof;  
    configure the one or more channels based on the test settings in the first  
6 message;  
    receive test packets via a forward traffic channel;  
8 transmit loop back packets via a reverse traffic channel; and  
    transmit signaling data via traffic or one or more auxiliary channels.
6. A method for testing one or more channels in a wireless data  
2 communication system, comprising:

receiving a first data transmission via a first channel;

4 identifying parameter values descriptive of the first data transmission;

forming a second data transmission with the identified parameter values; and

6 transmitting the second data transmission via a second channel.

7. The method of claim 6, wherein the first channel is a forward traffic  
2 channel and the second channel is a reverse traffic channel.

8. The method of claim 7, wherein the first data transmission comprises a  
2 plurality of test packets and the second data transmission comprises a plurality of loop  
back packets, and wherein the loop back packets include the parameter values  
4 descriptive of the test packets.

9. The method of claim 8, wherein one loop back packet is formed for each  
2 particular time interval.

10. The method of claim 8, wherein each loop back packet covers zero or  
2 more test packets.

11. The method of claim 10, wherein each loop back packet includes a first  
2 field indicative of a specific protocol to which the loop back packet belongs.

12. The method of claim 10, wherein each loop back packet includes a  
2 second field indicative of a specific packet type for the loop back packet.

13. The method of claim 10, wherein each loop back packet includes a third  
2 field indicative of a start of a specific time interval covered by the loop back packet.

14. The method of claim 10, wherein each loop back packet includes a fourth  
2 field indicative of whether any loop back packets were lost due to buffer overflow.

15. The method of claim 10, wherein each loop back packet includes a fifth  
2 field indicative of a specific number of records included in the loop back packet,  
wherein one record is included for each test packet covered by the loop back packet.

16. The method of claim 10, wherein each loop back packet includes one  
 2 record for each test packet covered by the loop back packet, each record including a set  
 of fields for a set of parameter values identified for the corresponding covered test  
 4 packet.

17. The method of claim 16, wherein each record includes a first field  
 2 indicative of whether or not the record includes a sequence number of a signaling  
 message used to assign the first channel.

18. The method of claim 17, wherein each record includes a second field  
 2 indicative of the sequence number for the signaling message.

19. The method of claim 16, wherein each record includes a third field  
 2 indicative of a transmission source of the test packet covered by the record.

20. The method of claim 16, wherein each record includes a fourth field  
 2 indicative of a time period over which the test packet covered by the record was  
 received.

21. The method of claim 16, wherein each record includes a fifth field  
 2 indicative of a number of MAC packets received in a Physical Layer packet containing  
 the test packet covered by the record.

22. The method of claim 16, wherein each record includes a sixth field  
 2 indicative of whether or not a sequence number for the covered test packet is included  
 in the record.

23. The method of claim 22, wherein each record includes a seventh field  
 2 indicative of a sequence number for the covered test packet.

24. The method of claim 8, wherein each loop back packet includes a  
 2 parameter value indicative of omission of one or more test packets.

25. The method of claim 8, within each test packet includes a first field  
2 indicative of a specific protocol to which the test packet belongs.

26. The method of claim 8, wherein each test packet includes a second field  
2 indicative of a specific packet type for the test packet.

27. The method of claim 8, wherein each test packet includes a third field  
2 indicative of a sequence number of the test packet.

28. A memory communicatively coupled to a digital signal processing  
2 device (DSPD) capable of interpreting digital information to:

receive a first data transmission via a first channel;  
4 identify parameter values descriptive of the first data transmission;  
form a second data transmission with the identified parameter values; and  
6 transmit the second data transmission via a second channel.

29. A method for testing one or more channels in a wireless data  
2 communication system, comprising:

receiving a plurality of test packets via a forward traffic channel;  
4 identifying a transmission source and a sequence number of each received test  
packet;

6 forming a plurality of loop back packets for the plurality of received test packets,  
wherein each loop back packet covers zero or more test packets and includes the  
8 transmission source and the sequence number of each covered test packet; and

transmitting the loop back packets via a reverse traffic channel.

30. A method for testing one or more channels in a wireless data  
2 communication system, comprising:

sending a first data transmission via a first channel;  
4 receiving a second data transmission via a second channel, wherein the second  
data transmission includes parameter values descriptive of the first data transmission;  
6 and

updating a plurality of variables based on the parameter values included in the  
8 second data transmission.

31. A method for testing one or more channels in a wireless data  
2 communication system, comprising:  
    sending a plurality of test packets via a forward traffic channel;  
4      receiving a plurality of loop back packets via a reverse traffic channel, wherein  
    each loop back packet covers zero or more test packets and includes a transmission  
6      source and a sequence number of each covered test packet; and  
    updating a plurality of variables for a plurality of transmission sources based on  
8      the transmission source and the sequence number of each test packet covered by the  
    received loop back packets.

32. A method for testing forward link for specific configuration of one or  
2 more auxiliary channels in a wireless data communication system, comprising:  
    receiving a first message having included therein test settings for the one or  
4      more auxiliary channels;  
    configuring each auxiliary channel based on test settings applicable to the  
6      auxiliary channel; and  
    transmitting each configured auxiliary channel in accordance with the applicable  
8      test settings.

33. The method of claim 32, wherein each test setting is provided via a  
2      respective record in the first message.

34. The method of claim 32, wherein the one or more auxiliary channels is  
2      used for signaling.

35. The method of claim 32, wherein the first message includes a first test  
2      setting for a particular bit value to be transmitted on an acknowledgment (ACK)  
    channel.

36. The method of claim 32, wherein the first message includes a second test  
2      setting for a particular value to be transmitted on a data rate control (DRC) channel.

37. The method of claim 32, wherein the first message includes a third test  
2 setting for a particular cover to be used for a data rate control (DRC) channel.

38. The method of claim 32, wherein the first message includes a fourth test  
2 setting indicative of maintenance of a test mode in event of a connection closure or a  
lost connection.

39. A memory communicatively coupled to a digital signal processing  
2 device (DSPD) capable of interpreting digital information to:

send a plurality of test packets via a forward traffic channel;  
4 receive a plurality of loop back packets via a reverse traffic channel, wherein  
each loop back packet covers zero or more test packets and includes a transmission  
6 source and a sequence number of each covered test packet; and  
update a plurality of variables for a plurality of transmission sources based on  
8 the transmission source and the sequence number of each test packet covered by the  
received loop back packets.

40. A method for testing a link in a wireless data communication system,  
2 comprising:  
collecting a first statistic for a first parameter while in a first operating state;  
4 collecting a second statistic for a second parameter while in a second operating  
state;  
6 receiving a first message requesting the first or second statistic; and  
sending a second message with the requested first or second statistic.

41. The method of claim 40, wherein the first parameter corresponds to  
2 changes in active set pilot while in an idle state.

42. The method of claim 40, wherein the second parameter corresponds to  
2 changes in serving sector while in a connected state.

43. The method of claim 40, further comprising:  
2 receiving a third message to reset the first and second statistics; and

4 resetting the first and second statistics in response to receiving the third  
message.

2 44. A memory communicatively coupled to a digital signal processing  
device (DSPD) capable of interpreting digital information to:  
collect a first statistic for a first parameter while in a first operating state;  
4 collect a second statistic for a second parameter while in a second operating  
state;  
6 receive a first message requesting the first or second statistic; and  
send a second message with the requested first or second statistic.

2 45. A method for testing a traffic channel in a wireless data communication  
system, comprising:  
receiving a first message having included therein test settings for the traffic  
4 channel;  
forming a plurality of test packets for transmission on the traffic channel;  
6 selecting rates for the test packets based on a rate selection scheme; and  
transmitting the test packets at the selected rates on the traffic channel.

2 46. The method of claim 45, wherein the first message includes a minimum  
rate and a maximum rate for the test packets.

2 47. The method of claim 46, wherein the selected rates for the test packets  
are cycled between the minimum and maximum rates.

2 48. The method of claim 47, wherein the selected rates for the test packets  
are further limited by a maximum rate specified by a media access control (MAC)  
protocol.

2 49. The method of claim 45, wherein the first message includes an indication  
of maintenance of a test mode on the traffic channel in event of a connection closure or  
a lost connection.

50. The method of claim 45, wherein each test packet includes a first field  
2 indicative of a specific protocol to which the test packet belongs.

51. The method of claim 45, wherein each test packet includes a second field  
2 indicative of a specific packet type for the test packet.

52. The method of claim 45, wherein each test packet includes a third field  
2 indicative of a particular time instance when the test packet was generated.

53. The method of claim 45, wherein each test packet includes a fourth field  
2 indicative of whether or not a test packet was lost due to buffer overflow.

54. The method of claim 45, wherein each test packet includes a field for  
2 each of a plurality of possible rates for the test packet, and wherein each rate field  
includes a sequence number of a test packet last transmitted at the corresponding rate.

55. The method of claim 54, wherein each test packet includes fields for all  
2 possible reverse link rates.

56. A memory communicatively coupled to a digital signal processing  
2 device (DSPD) capable of interpreting digital information to:  
receive a first message having included therein test settings for the traffic  
4 channel;  
form a plurality of test packets for transmission on the traffic channel;  
6 select rates for the test packets based on a rate selection scheme; and  
transmit the test packets at the selected rates on the traffic channel.

57. A method for testing a reverse traffic channel in a wireless data  
2 communication system, comprising:  
receiving a first message having included therein a minimum rate and a  
4 maximum rate for data transmission on the reverse traffic channel;  
forming a plurality of test packets for transmission on the reverse traffic channel,  
6 wherein each test packet includes a sequence number of a test packet last transmitted at  
each of a plurality of possible rates;



8 selecting rates for the test packets based on a rate selection scheme and limited  
by the minimum and maximum rates; and  
10 transmitting the test packets at the selected rates on the reverse traffic channel.

58. The method of claim 57, further comprising:  
2 queuing the formed test packets.

59. A method for testing a traffic channel in a wireless data communication  
2 system, comprising:  
sending a first message having included therein test settings for the reverse  
4 traffic channel;  
receiving a plurality of test packets at a plurality of rates on the reverse traffic  
6 channel; and  
updating a plurality of variables maintained for the plurality of rates based on  
8 the rates of the received test packets.

60. The method of claim 59, further comprising:  
2 for each received test packet, updating a first variable based on a sequence  
number of the test packet.

61. A terminal in a wireless data communication system comprising:  
2 a receive data processor operative to receive a plurality of test packets via a  
forward traffic channel;  
4 a controller operative to identify a transmission source and a sequence number  
of each received test packet and to form a plurality of loop back packets for the plurality  
6 of received test packets, wherein each loop back packet covers zero or more test packets  
and includes the transmission source and the sequence number of each covered test  
8 packet; and  
a transmit data processor operative to process the loop back packets for  
10 transmission via a reverse traffic channel.

62. The terminal of claim 61, further comprising:  
2 a buffer operative to queue the loop back packets.

63. An apparatus in a wireless data communication system comprising:  
2 means for receiving a plurality of test packets via a forward traffic channel;  
means to identify a transmission source and a sequence number of each received  
4 test packet;  
means for forming a plurality of loop back packets for the plurality of received  
6 test packets, wherein each loop back packet covers zero or more test packets and  
includes the transmission source and the sequence number of each covered test packet;  
8 and  
means for processing the loop back packets for transmission via a reverse traffic  
10 channel.

64. A terminal in a wireless data communication system comprising:  
2 a receive data processor operative to receive a first message having included  
therein a minimum rate and a maximum rate for data transmission on a reverse traffic  
4 channel;  
a controller operative to form a plurality of test packets for transmission on the  
6 reverse traffic channel, wherein each test packet includes a sequence number of a test  
packet last transmitted at each of a plurality of possible rates, and to select rates for the  
8 test packets based on a rate selection scheme and limited by the minimum and  
maximum rates; and  
10 a transmit data processor operative to process the test packets for transmission at  
the selected rates on the reverse traffic channel.

65. The terminal of claim 61, further comprising:  
2 a buffer operative to queue the formed test packets.

66. An apparatus in a wireless data communication system comprising:  
2 means for receiving a first message having included therein a minimum rate and  
a maximum rate for data transmission on a reverse traffic channel;  
4 means for forming a plurality of test packets for transmission on the reverse  
traffic channel, wherein each test packet includes a sequence number of a test packet  
6 last transmitted at each of a plurality of possible rates;  
means for selecting rates for the test packets based on a rate selection scheme  
8 and limited by the minimum and maximum rates; and

means for processing the test packets for transmission at the selected rates on the  
10 reverse traffic channel.

67. An access point in a wireless data communication system comprising:  
2 a transmit data processor operative to process a plurality of test packets for  
transmission via a forward traffic channel;  
4 a receive data processor operative to process a plurality of loop back packets  
received via a reverse traffic channel, wherein each loop back packet covers zero or  
6 more test packets and includes a transmission source and a sequence number of each  
covered test packet; and  
8 a controller operative to update a plurality of variables for a plurality of  
transmission sources based on the transmission source and the sequence number of each  
10 test packet covered by the received loop back packets.

68. An apparatus in a wireless data communication system comprising:  
2 means for processing a plurality of test packets for transmission via a forward  
traffic channel;  
4 means for processing a plurality of loop back packets received via a reverse  
traffic channel, wherein each loop back packet covers zero or more test packets and  
6 includes a transmission source and a sequence number of each covered test packet; and  
means for updating a plurality of variables for a plurality of transmission sources  
8 based on the transmission source and the sequence number of each test packet covered  
by the received loop back packets.